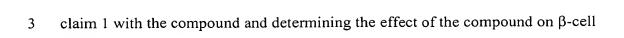


WHAT IS CLAIMED IS:

1	1.	A method for inducing insulin gene expression in cultured
2	endocrine pancreas β-cells, the method comprising the steps of:	
3	(i) expressing a recombinant NeuroD/BETA2 polynucleotide and a	
4	recombinant PDX-1 polynucleotide in endocrine pancreas β-cells that have been cultured	
5	under conditions suc	h that the β-cells are in contact with other cells in the culture; and
6	(ii) co	entacting the cells with a GLP-1 receptor agonist, thereby inducing
7	insulin gene expression in the β -cells.	
1	2.	The method of claim 1, wherein the GLP-1 receptor agonist is a
2	GLP-1 analog.	
1	3.	The method of claim 1, wherein the GLP-1 receptor agonist has an
2	amino acid sequence of a naturally occurring peptide.	
1	4.	The method of claim 3, wherein the GLP-1 receptor agonist is
2	GLP-1, exendin-3, or exendin-4.	
1	5.	The method of claim 1, wherein the cells are cultured as aggregates
2	in suspension.	
1	6.	The method of claim 1, wherein the β -cells are human β -cells.
1	7.	The method of claim 1, wherein the β -cells express a recombinant
2	oncogene.	
1	8.	The method of claim 7, wherein the β -cells express more than one
2	recombinant oncogene.	
ì	9.	The method of claim 1, wherein the β -cells express a recombinant
2	telomerase gene.	
1	10.	The method of claim 1, wherein the β -cells are β lox5 cells.
1	11.	A method of identifying a compound that modulates β-cell
2	function, the method comprising the steps of contacting cells made by the method of	

function.

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- 1 12. A stable culture of endocrine pancreas β-cells, wherein the β-cells are in contact with other cells in the culture, wherein the β-cells express a recombinant PDX-1 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide, and wherein insulin gene expression is stimulated in the β-cells when exposed to an effective amount of a GLP-1 receptor agonist.
- 1 13. The culture of claim 12, wherein the GLP-1 receptor agonist is a 2 GLP-1 analog.
- 1 14. The culture of claim 12, wherein the GLP-1 receptor agonist has an 2 amino acid sequence of a naturally occurring peptide.
- 1 15. The culture of claim 14, wherein the GLP-1 receptor agonist is 2 GLP-1, exendin-3, or exendin-4.
- 1 16. The culture of claim 12, wherein the cells are cultured as 2 aggregates in suspension.
- 1 The culture of claim 12, wherein the β -cells are human β -cells.
- 1 18. The culture of claim 12, wherein the β-cells express a recombinant 2 oncogene.
- 1 19. The culture of claim 18, wherein the β-cells express more than one 2 recombinant oncogene.
- 1 20. The culture of claim 12, wherein the β-cells express a recombinant 2 telomerase gene.
- 1 21. The culture of claim 12, wherein the β -cells are β lox5 cells.
- 1 22. A method of identifying a compound that modulates β-cell
 2 function, the method comprising the steps of contacting the culture of claim 12 with the
 3 compound and determining the effect of the compound on β-cell function.

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- 1 23. A method of treating a diabetic subject by providing to the subject
 2 cells that secrete insulin in response to glucose, the method comprising the step of
 3 administering to the subject an effective amount of cells according to claim 1.
 1 24. A method of treating a diabetic subject by providing to the subject
 - cells that secrete insulin in response to glucose, the method comprising the steps of:
 - (i) contacting a culture of endocrine pancreas β -cells expressing a recombinant PDX-1 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide with a GLP-1 receptor agonist, wherein the β -cells have been cultured under conditions such that the β -cells are in contact with other cells in the culture; and
 - (ii) administering the β -cells to the subject, thereby providing to the subject cells that secrete insulin in response to glucose.
- 1 25. The method of claim 24, wherein the diabetic subject is a human.
- 1 26. The method of claim 25, wherein the subject has Type I insulin 2 dependent diabetes.
- The method of claim 24, wherein the GLP-1 receptor agonist is a GLP-1 analog.
- The method of claim 24, wherein the GLP-1 receptor agonist has an amino acid sequence of a naturally occurring peptide.
- 1 29. The method of claim 28, wherein the GLP-1 receptor agonist is 2 GLP-1, exendin-3, or exendin-4.
- 30. The method of claim 24, wherein the β-cells are cultured as
 aggregates in suspension.
- 31. An endocrine pancreas β-cell comprising a recombinant PDX-1
 polynucleotide and a recombinant NeuroD/BETA2 polynucleotide.
- The β-cell of claim 31, wherein the β-cell is a human β-cell.
- 1 33. The β-cell of claim 31, wherein the β-cell expresses a recombinant 2 oncogene.

- 1 34. The β -cell of claim 33, wherein the β -cell expresses more than one 2 recombinant oncogene.
- 1 35. The β -cell of claim 31, wherein the β -cell expresses a recombinant
- 2 telomerase gene.